

HT401

PROFESSIONAL MULTIMETER WITH AC+DC TRMS MEASUREMENT

HT401 is a TRMS professional digital multimeter capable of measuring AC/DC voltage and AC/DC current. Among its several functions AC+DC mode is used to take into account DC components on the AC signal while AC voltage measurement under low impedance condition reduces measurement influences between adjacent conductors. HT401 is designed to comply with safety standards IEC/EN61010-1 under CAT III 1000V and CAT IV 600V with double insulation protection. It is provided with auto power off and back light function to carry out measurements under poorly lighted environments.

TECHNICAL SPECIFICATIONS

DC Voltage

Measurement range: 0.01mV ÷ 1000V

Basic accuracy: $\pm(0.08\%rdg + 2dgt)$

AC TRMS Voltage

Measuring range: 0.01mV ÷ 1000V

Basic accuracy: $\pm(0.8\%rdg + 5dgt)$

AC+DC TRMS Voltage

Measuring range: 0.01mV ÷ 1000V

Basic accuracy: $\pm(2.0\%rdg + 5dgt)$

Auto-V (low impedance AC/DC Voltage measurement)

Measuring range: 0.1V ÷ 1000V

Basic accuracy: $\pm(0.8\%rdg + 3dgt)$

DC Current

Measuring range: 0.01mA ÷ 10.00A

Basic accuracy: $\pm(0.8\%rdg + 3dgt)$

AC TRMS Current

Measuring range: 0.01mA ÷ 10.00A

Basic accuracy: $\pm(1.2\%rdg + 3dgt)$

AC+DC Current

Measuring range: 0.01mA ÷ 10.00A

Basic accuracy: $\pm(2.0\%rdg + 5dgt)$

Frequency

Measuring range: 0.01Hz ÷ 100.00kHz

Basic accuracy: $\pm(0.1\%rdg + 2dgt)$

Resistance and continuity test

Measuring range: $0.1\Omega \div 40.00M\Omega$

Basic accuracy: $\pm(0.8\%rdg + 2dgt)$

Buzzer: $<3\Omega$

Diode test

Measuring range: 2.000V

Basic accuracy: $\pm(1.5\%rdg + 2dgt)$

Capacitance

Measuring range: 0.001 μ F ÷ 10.00mF

Basic accuracy: $\pm(1.2\%rdg + 2dgt)$

Temperature with K probe

Measuring range: $-40.0^{\circ}C \div 400^{\circ}C$
 $-40.0^{\circ}C \div 752^{\circ}F$

Basic accuracy: $\pm(1.0\%rdg + 10dgt)$
 $\pm(1.0\%rdg + 18dgt)$

GENERAL SPECIFICATIONS

Display:	LCD, 4 digits, 6000 counts
Power supply:	1x9V alkaline battery type 6F22
Battery life:	150 hours
Auto Power OFF:	after 20 minutes of idleness
Safety:	IEC/EN61010-1
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	190x94x48mm
Weight (batteries included):	460g

FUNCTIONS

DC/AC TRMS voltage

DC/AC TRMS current

AC + DC measurement

AC voltage measurement with low impedance

"VoltSense" for AC voltage detection without contact

Resistance and continuity test

Frequency

Diode test

Capacitance

Temperature with K type probe

Data HOLD

MAX/MIN/PEAK

Relative measurement

Automatic/Manual range

Backlight

Bargraph

Auto Power OFF

ACCESSORIES

Standard

Test leads

K-type probe adapter

K-type bead probe

Battery

User manual

Optional

K-type probes



HT401
HR000401



1. ELECTRICAL SPECIFICATIONS

Accuracy is indicated as $\pm [\%rdg + (\text{numbers of digits} \times \text{resolution})]$ at $23^\circ\text{C} \pm 5^\circ\text{C}$, $<80\%HR$

DC VOLTAGE

Range	Resolution	Accuracy	Overload protection
60.00mV	0.01mV	$\pm(0.08\%rdg+10dgt)$	1000VDC/ACrms
600.0mV	0.1mV	$\pm(0.08\%rdg+2dgt)$	
6.000V	0.001V		
60.00V	0.01V		
600.0V	0.1V		
1000V	1V		

Input impedance: $10M\Omega // <100pF$

AC TRMS VOLTAGE

Range	Resolution	Accuracy (50Hz ÷ 1kHz)	Overload protection
60.00mV	0.01mV	$\pm(1.2\%rdg+5dgt)$	1000VDC/ACrms
600.0mV	0.1mV		
6.000V	0.001V	$\pm(0.8\%rdg+5dgt)$	
60.00V	0.01V		
600.0V	0.1V		
1000V	1V		

Input impedance: $10M\Omega // <100pF$

For non-sinusoidal voltages add the herewith correction on accuracies:

Crest factor $1.4 \div 2.0 \rightarrow$ add $1.0\%rdg$ Crest factor da $2.0 \div 2.5 \rightarrow$ add $2.5\%rdg$ Crest factor da $2.5 \div 3.0 \rightarrow$ add $4.0\%rdg$ Max crest factor: $3.0 (0 \div 3000 dgt)$; $2.0 (3000 \div 5000 dgt)$; $1.6 (5000 \div 6000 dgt)$ PEAK HOLD feature: specified accuracy $\pm 150dgt$

AC+DC TRMS VOLTAGE

Range	Resolution	Accuracy (50Hz ÷ 1kHz)	Overload protection
60.00mV	0.01mV	$\pm(2.0\%rdg+10dgt)$	1000VDC/ACrms
600.0mV	0.1mV		
6.000V	0.001V	$\pm(2.0\%rdg+5dgt)$	
60.00V	0.01V		
600.0V	0.1V		
1000V	1V		

Input impedance: $10M\Omega // <100pF$

For non-sinusoidal voltages consider the indication of AC TRMS voltage

PEAK HOLD feature: specified accuracy $\pm 150dgt$

AUTO -V VOLTAGE (Voltage measurement with low impedance)

Range	Resolution	Accuracy (50Hz ÷ 1kHz)	Overload protection
600.0V DC	0.1V	$\pm(0.8\%rdg+3dgt)$	1000VDC/ACrms
1000V DC	1V		
600.0V AC	0.1V		
1000V AC	1V		

Input impedance: approx $3k\Omega$

For non-sinusoidal voltages consider the indication of AC TRMS voltage





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DC CURRENT

Range	Resolution	Accuracy	Overload protection
60.00mA	0.01mA	$\pm(0.8\%rdg+3dgt)$	Fuse 440mA/1kVAC/DC,10kA (input mA) Fuse 11A/1kVAC/DC,20kA (input A)
600.0mA	0.1mA		
6.000A	0.001A		
10.00A	0.01A		

AC TRMS CURRENT

Range	Resolution	Accuracy (50Hz ÷ 1kHz)	Overload protection
60.00mA	0.01mA	$\pm(1.2\%rdg+3dgt)$	Fuse 440mA/1kVAC/DC,10kA (input mA) Fuse 11A/1kVAC/DC,20kA (input A)
600.0mA	0.1mA		
6.000A	0.001A		
10.00A	0.01A		

For non-sinusoidal current consider the indication of AC TRMS voltage
PEAK HOLD feature: specified accuracy $\pm 150dgt$

AC+DC TRMS CURRENT

Range	Resolution	Accuracy (50Hz ÷ 1kHz)	Overload protection
60.00mA	0.01mA	$\pm(2.0\%rdg+5dgt)$	Fusibile 440mA/1kVAC/DC,10kA (ingresso mA) Fusibile 11A/1kVAC/DC,20kA (ingresso A)
600.0mA	0.1mA		
6.000A	0.001A		
10.00A	0.01A		

For non-sinusoidal current consider the indication of AC TRMS voltage
PEAK HOLD feature: specified accuracy $\pm 150dgt$

RESISTANCE

Range	Resolution	Accuracy	Open voltage	Overload protection
600.0 Ω	0.1 Ω	$\pm(0.8\%rdg+5dgt)$	<2.5V	1000VDC/ACrms
6.000k Ω	0.001k Ω			
60.00k Ω	0.01k Ω	$\pm(0.8\%rdg+2dgt)$	<0.6V	
600.0k Ω	0.1k Ω			
6.000M Ω	0.001M Ω			
40.00M Ω	0.01M Ω	$\pm(1.0\%rdg+5dgt)$		

CONTINUITY TEST

Range	Resolution	Accuracy	Overload protection
600.0 Ω	0.1 Ω	$\pm(0.8\%rdg+5dgt)$	1000VDC/ACrms

Max open voltage: 2.5V
Max test current: approx 1mA
Active buzzer: R <30 Ω

DIODE TEST

Range	Resolution	Accuracy	Open voltage	Overload protection
2.000V	1mV	$\pm(1.5\%rdg+2dgt)$	<2.5V	1000VDC/ACrms

Max test current: 0.4mA



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FREQUENCY

Range	Resolution	Accuracy	Overload protection
100.00Hz	0.01Hz	$\pm(0.1\%rdg+2dgt)$	1000VDC/ACrms
1000.0Hz	0.1Hz		
10.000kHz	0.001kHz		
100.00kHz	0.01kHz		

Minimum value read: 1Hz

Sensitivity: > 5.0Vp-p (ACV 1Hz ÷ 10kHz) ; > 10Vp-p (ACV 10kHz ÷ 100kHz) ; > 2mA_{p-p} (AC mA) ; > 0.2A_{p-p} (AC A)

CAPACITANCE

Range	Resolution	Accuracy	Meas. Time	Overload protection
1.000μF	0.001μF	$\pm(1.2\%rdg+2dgt)$	<0.7s	1000VDC/ACrms
10.00μF	0.01μF			
100.0μF	0.1μF		<3s	
1.000mF	0.001mF			
10.00mF	0.01mF			

TEMPERATURE WITH TYPE K PROBE

Range	Resolution	Accuracy (*)	Overload protection
-40.0°C ÷ 400.0°C	0.1°C	$\pm(1.0\%rdg+10dgt)$	1000VDC/ACrms
-40.0°F ÷ 752°F	0.1°F	$\pm(1.0\%rdg+18dgt)$	

(*) Accuracy referred to the instrument without probe



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2. GENERAL SPECIFICATIONS


Display:

- LCD display, 4 digit with maximum reading 6000 counts with sign, decimal point and bargraph
- Automatic polarity indication
- Backlight
- "OL" over range indication

Features:

- Data HOLD
- MAX/MIN for maximum and minimum value
- PEAK for peak measurement
- VOLTSENSE for AC voltage detection without contact
- AC+DC for measurement of DC component overlapped to the alternate signal
- AUTO-V for AC/DC voltage measurement with low impedance
- RANGE for manual range selection
- REL for relative measurement
- Auto Power OFF after 20 minutes of idleness

Low battery indication:

- The symbol "" appears when the battery voltage is low

Environmental conditions:

- Working temperature/humidity: -10 °C ÷ 50 °C, <80%HR
- Storage temperature/humidity: -20 °C ÷ 60 °C, <80%HR

General information:

- Max height of use: 2000m
- Pollution degree: 2
- Insulation: double insulation

Power supply:

- 1 x 9V alkaline battery type NEDA1604, JIS006P, IEC6F22

Sizes:

- 190(L)x94(W)x48(H) mm

Weight (included batteries):

- 460g

Applied standards:

- Safety: IEC/EN61010-1, UL61010-1
- Measurement category: CAT IV 600V – CAT III 1000V

This product conforms to the prescriptions of the European directive on low voltage 2006/95/EEC and to EMC directive 2004/108/EEC

